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(56) Documents Cited
GB 2349058 A   GB 2342819 A
EP 0868040 A2   WO 2000/024198 A1
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(54) Abstract Title
Transmitting messages between set top box users via telephone and broadcast networks

(57) A system for the transmission of data, especially e-mail and multimedia data comprises a set-top box connected to a TV set. The set-top box can be used to send data via the telephone network. Incoming messages are received from a broadcast network which is connected to a system of servers connected to each other as well as to the Internet and the telephone network.
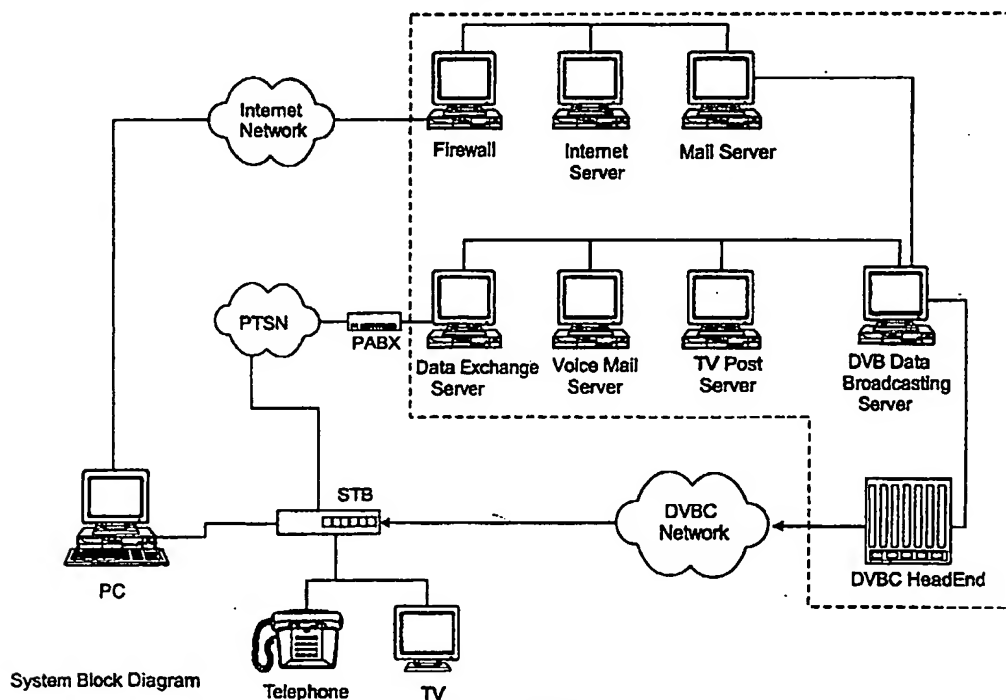
System Block Diagram

FIGURE 1

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FIGURE 1

System Block Diagram
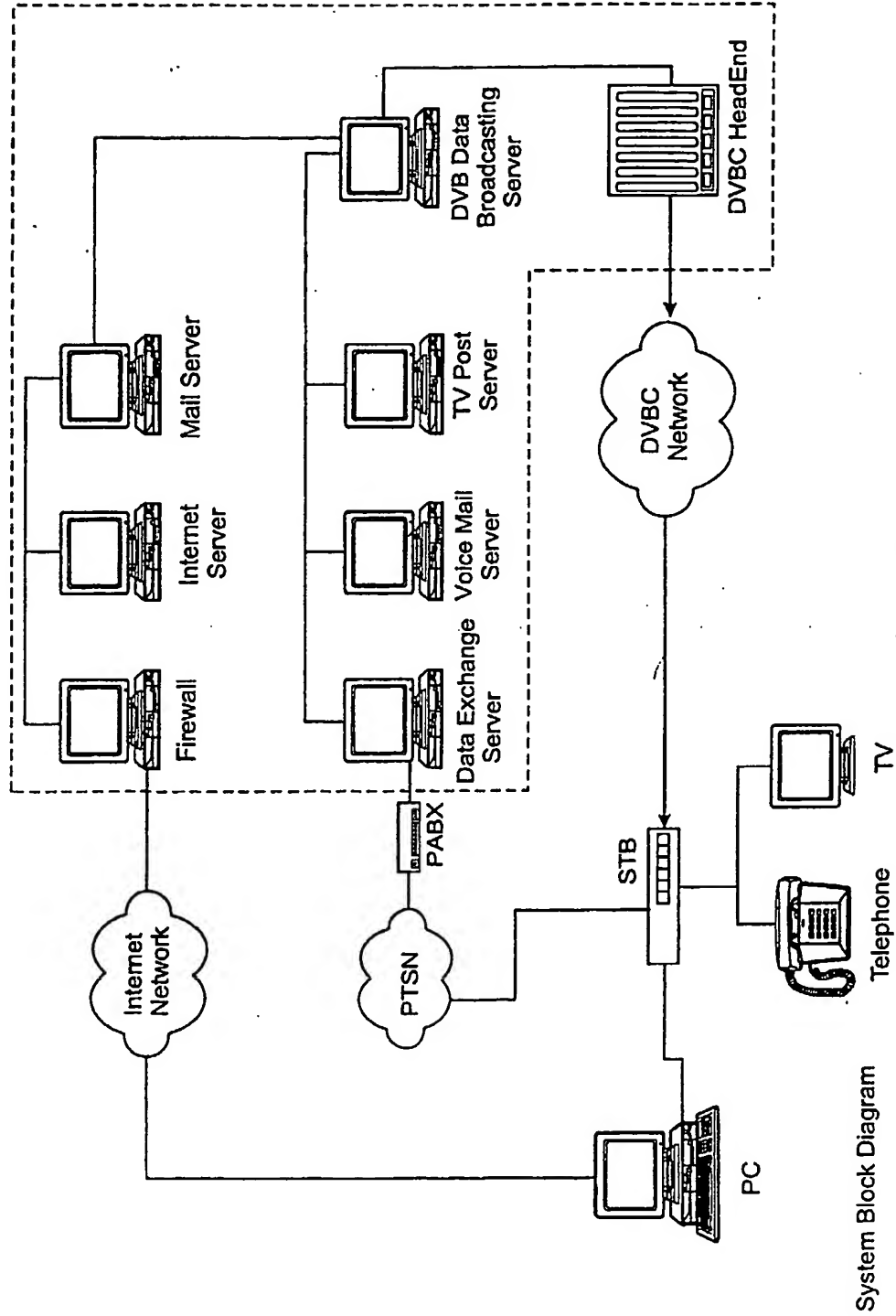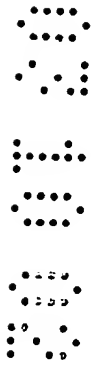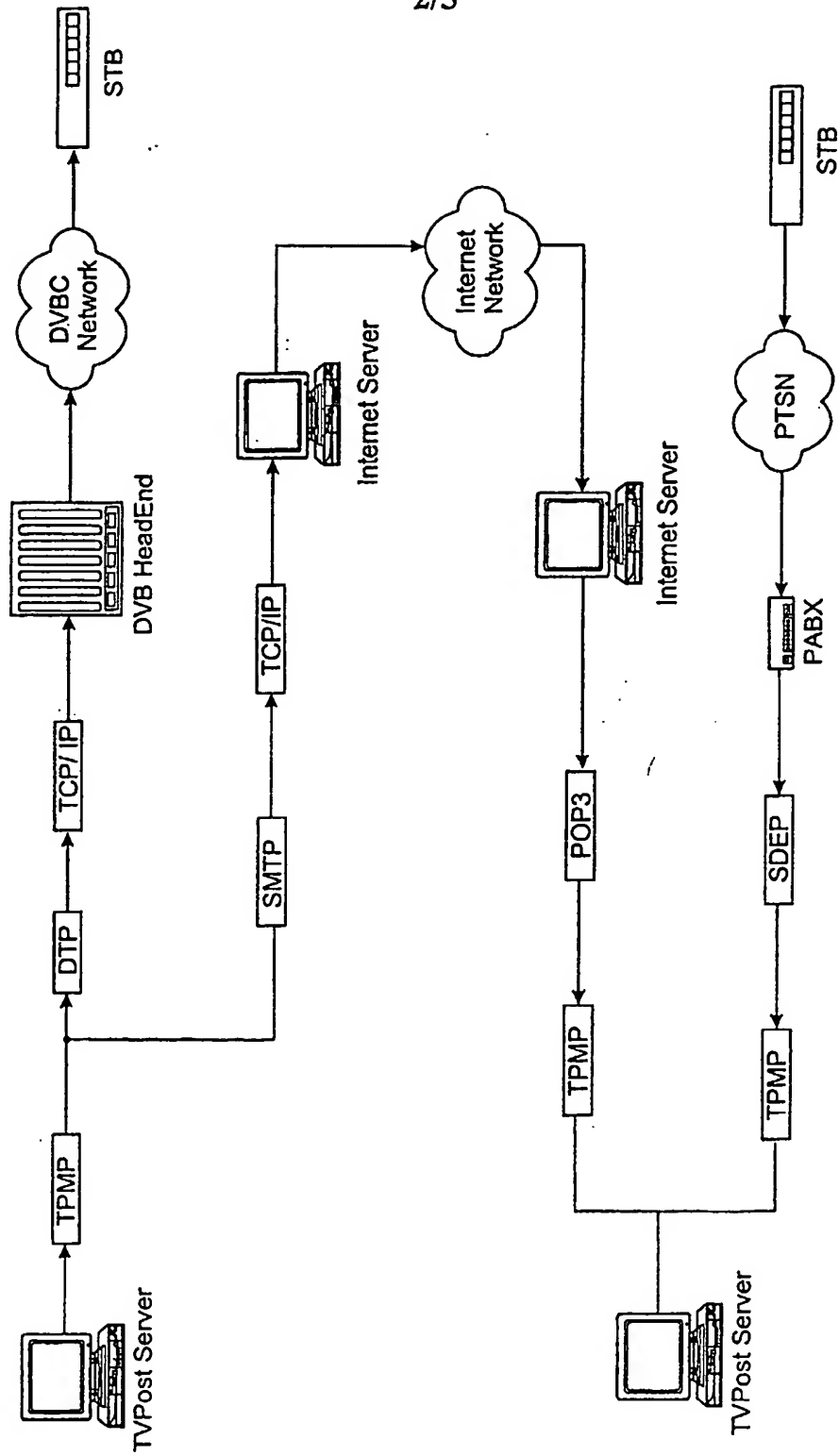
FIGURE 2

Protocol Flow Diagram

FIGURE 3
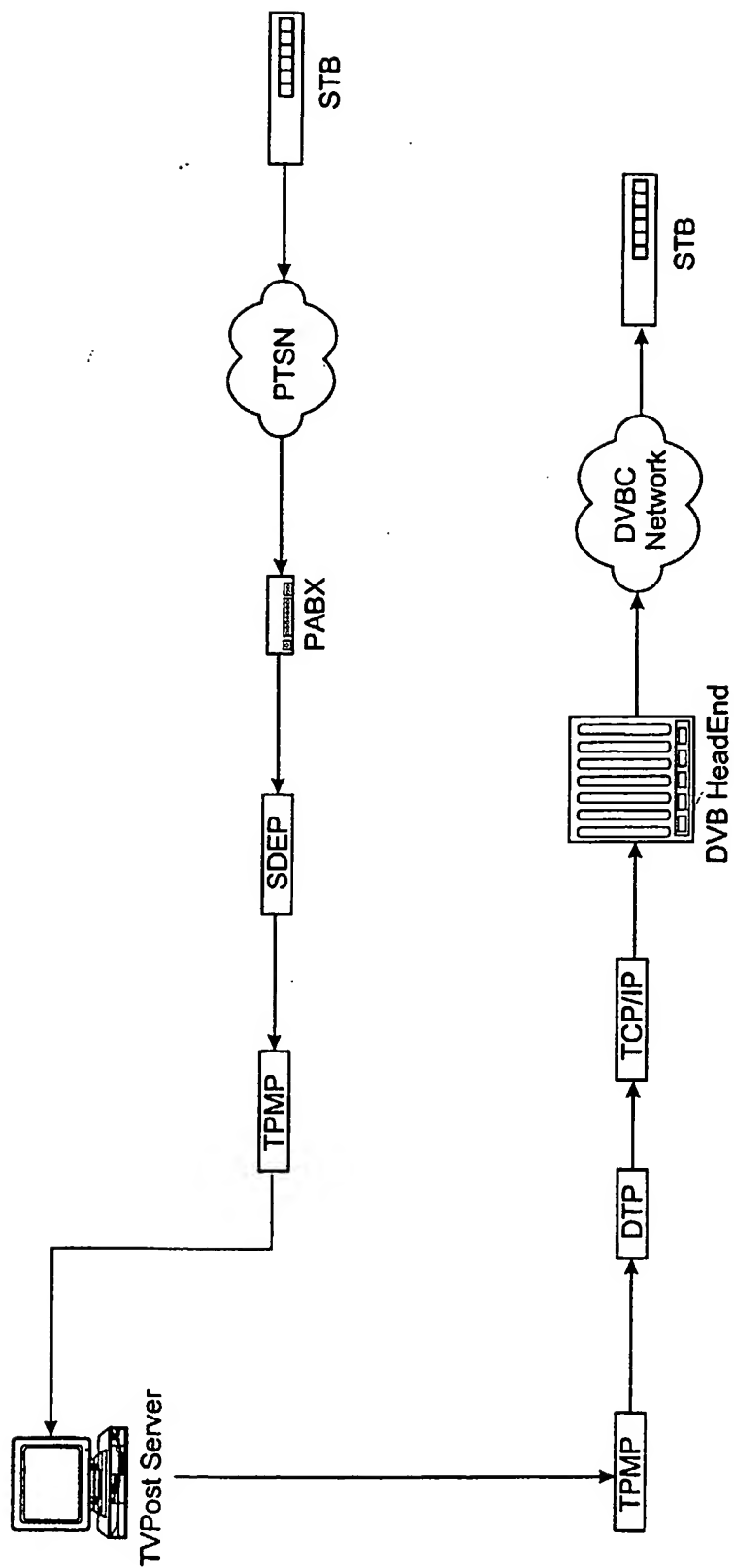
STB

PTSN

PABX

SDEP

TPMP

TPMP

TVPost Server

SMTP

TCP/IP

Internet Server

Internet Network

FIGURE 4

FIGURE 5

A SYSTEM AND METHOD FOR TRANSMISSION OF DATA

BACKGROUND TO THE INVENTION

5   The present invention relates to a system and method for transmission of data.

Until recently the transmission of data such as text, sound and other formats via e-mail or sound via a voice mail server has been

10   achieved using wired communication links. In more recent times, with the advent of satellite communication, wireless methods to deliver data are becoming popular. This has increased the number of options available for data to be transferred to the end user.
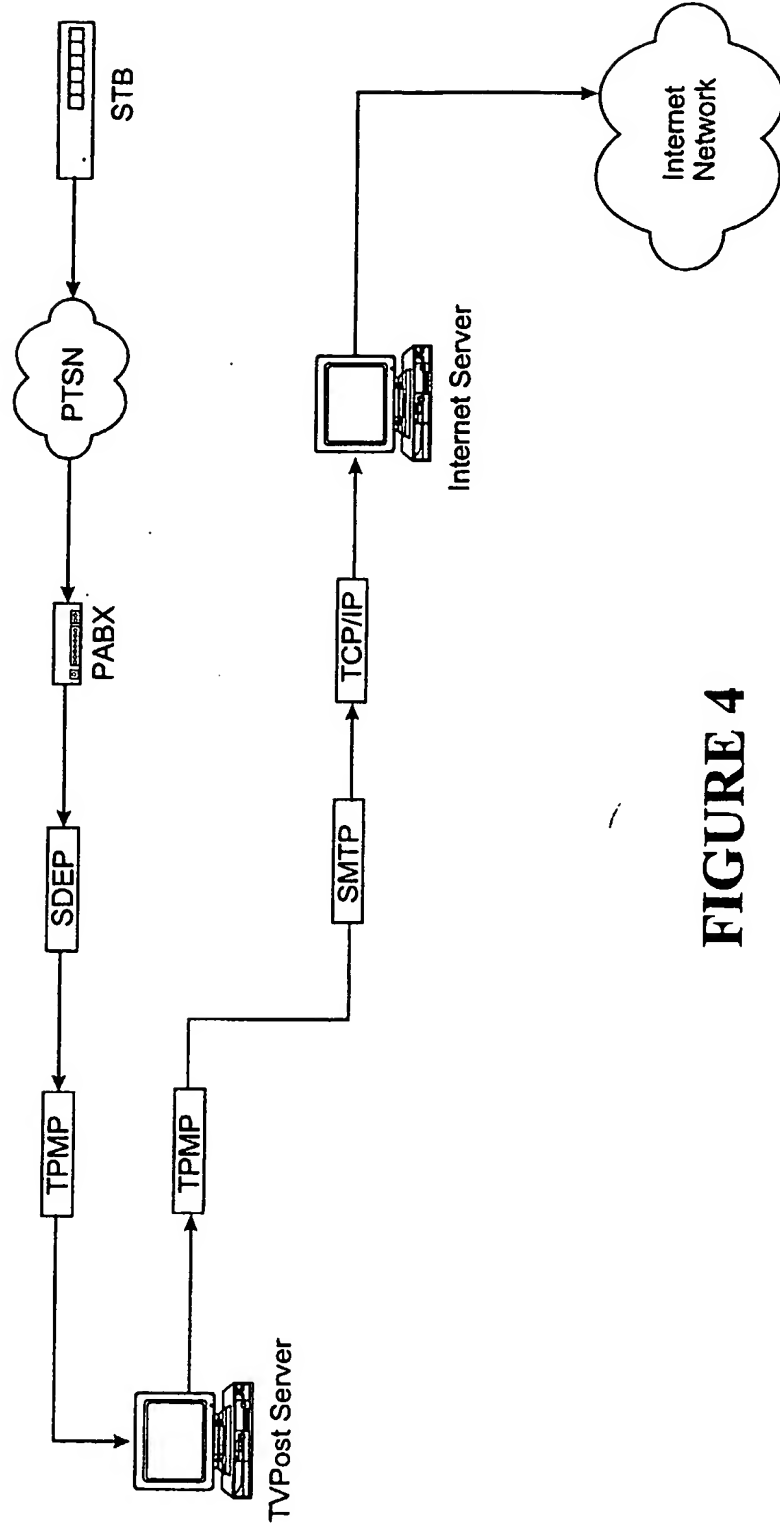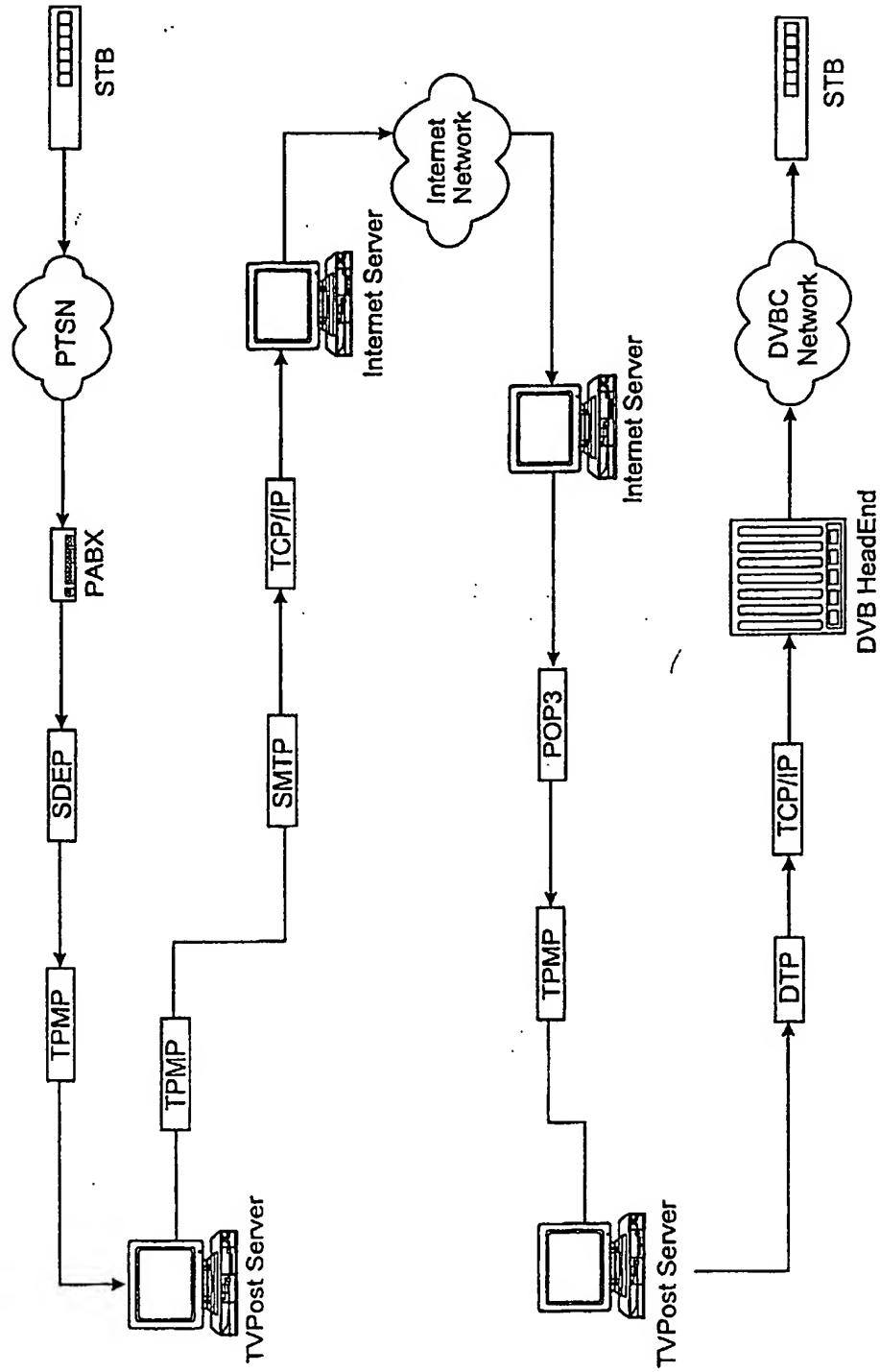
15   The ability for a person to receive information or to distribute information is becoming ever more important. The most common forms of receiving information, particularly information which has been digitised for transmission, is by way of the Internet. In particular this includes the use of e-mail. Parallel with the Internet are the other

20   forms of modern communicating, including networked communications, for mobile phones and pagers and the like. In addition more traditional and normally one way communications are still a very significant part or peoples lives. Such includes radio & TV broadcasting. For a sender to ensure the information such as text,

25   sound, video or image is going to be received, he must know the recipient has the appropriate equipment and connections. A recipient may not always have access to the hardware for receiving the formats of information or may not be on an appropriate network. Most
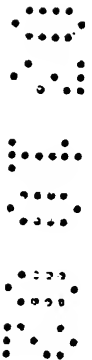
commonly to receive information will require hardware such as a computer, mobile phone, or pagers and these must be networked appropriately to be operative to receive. People may either not have a PC or have access to a PC when a message is desired to be

5 transmitted or received. Furthermore it may be desirable from a sender without or with a PC to send a message to a receiver who may also not have a PC at the receiving end. An interface needs to exist between the two different kinds of networks to which a sender and receiver belong.

10

Recently however people have addressed the issue of hardware requirements. This has for example seen the provision of Internet access via a television. A television set is still a device which forms a significant component of recreation in the lives of people in many

15 countries. The development of Internet access via a standard television has hence provided people with a variety of diverse sources of information that are accessible from home. The web TV has converged the functions of a TV set with an Internet browser. This convergence is achieved by what is referred to as a set-top box (STB).

20 Existing TV set-top boxes allow a person to select whether the TV signal will be viewed or whether the TV will be utilised for web browsing. Whilst the advantage of the TV set-top box is that a person could browse the net without the need for having a PC the data exchange is limited to a browsing application. The sending and

25 receiving of e-mail like messages is not possible from Web TV.

SUMMARY OF THE INVENTION

Accordingly it is an object of the present invention to provide a ·system .and method for transmission of data which allows the·use of a

5   standard household equipment to send and receive e-mails in a user friendly manner.

In a first aspect the present invention consists in a system for transmission of data comprising a means for generating a message,

10   an interface to connect the means for generating a message via a data network to a data exchange server, a means for handling messages connected to the data network and a broadcast network, a means for receiving messages via the broadcast network and a means for displaying messages received from the broadcast network.

15   /

The means for generating a message can be a keyboard, a personal computer or a telephone. The broadcast network is preferably a DVBC network. Messages can be sent between subscribers of the same broadcast network as well as subscribers·of

20   different broadcast networks. It is also possible to receive and send messages via the Internet. The data   are in any one or more multimedia formats such as sound, text, video or still images.

The invention also relates to a method for the transmission of data

25   comprising the steps of sending the data via a first public network to a data exchange server and receiving the data via a second broadcast network.

This invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, and any or all combinations of any two or more of said parts, elements or features, and where

5   specific integers are mentioned herein which have known equivalents in the art to which this invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth.

BRIEF DESCRIPTION OF THE DRAWINGS

10

The invention consists in the foregoing and also envisages constructions of which the following gives examples.

One preferred form of the present invention will now be described

15   with reference to the accompanying drawings in which;

Figure 1 is a system block diagram of the preferred form of providing the interface between fellow network subscribers and also with the Internet,

20

Figure 2 is a protocol flow diagram illustrating the preferred communication links for the system block diagram of Figure 1,

Figure 3 is a protocol flow diagram specific to the communication

25   link between a TV client sender and a TV post client receiver,

Figure 4 is a protocol flow diagram specific to the communication link between a TV client sender and the Internet for delivery to an Internet user,

5   Figure 5 is a protocol flow diagram specific to the communication link between a TV client sender and the Internet for delivery to a TV post client of another network.

DETAILED DESCRIPTION

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The present invention consists of an interface and system (hereinafter called "TV post") which allows transferring (by receiving and forwarding including optional storing) data, and in particular messages which may exist in the form of text, voice or graphic media,

15   between TV post subscribers or between a TV post subscriber and an e-mail or Internet subscriber. The system relies on a subscriber broadcasting system providing the ability of a subscriber to the system to send and receive data via the interface to or from one or more subscribers of the same broadcasting network, or to an outside

20   network of the same or affiliated subscriber network or to other Internet including e-mail subscribers. Preferably the data is a message and will hereinafter be referred to as "a message".

With reference to the system block diagram of Figure 1 the TV post

25   subscriber end may consist of a set-top box STB or other appropriate data transfer interface for transferring data to and/or from an output/input means as for example a television, telephone and/or PC. Furthermore or provided in conjunction with any one or more of these

means may be a supplementary input means for generating a message such as a keyboard or a microphone. The set-top box STB is preferably accompanied by a TV post client module which is a software module that .manages the client's side of the TV post
5   activities.

The receipt of the message by the user terminal/subscriber is via the set-top box STB and is received from a broadcast network such as for example a digital video broadcast network DVB. Whilst the digital
10 video broadcast network DVB is the most preferred, the present invention is not limited to such networks.

The message can be transmitted to the set-top box STB via the TV post system network from one or more of several sources including a
15 like TV post subscriber on the same broadcast network, a subscriber of a different broadcast network or from an e-mail source. The network to which it is to be delivered must however have address specific delivery functions.

20 In one example of a route of a message, the message is routed via a TV post server to an appropriate means for broadcasting to deliver the message to the TV post user terminal (receiver). The same TV post server designated for the broadcast network of the TV post subscriber also handles the delivery of messages to the TV post
25 subscriber end. A message may be generated at the TV post subscriber terminal in any one or more multimedia formats such as sound, text, video or still images. The creation of such may be achieved by any well known devices.

With reference to the system block diagram shown in Figure 1, there is for example illustrated a PC for the generation of text, voice or video/still imaging and a telephone for the generation of sound. Alternatively a keyboard may be linked to the set-top box STB for the

5 generation of text which may for example simultaneously be visible on the screen of the TV set TV. This generated data is transmitted to the TV post server for appropriate distribution therefrom, via an appropriate communication connection. By way of example with reference to Figure 1, the set-top box STB dials up a data exchange

10 server DES utilising a public switched telephone network PSTN and perhaps also via a private automatic branch exchange PABX. Such communications can be voice mail messages, text messages or other data types. With the system as shown in Figure 1, analog formats may be transmitted via the public switched telephone network PSTN and

15 may be converted into a digitized format at the TV post server end. Alternatively the transmission from the set-top box STB may already be in a digitized format. The data is then preferably compressed and packed into a TV post message protocol TPMP.

20 Alternative data communication connections to the preferred PSTN may be established between the data exchange server DES and the set-top box STB. These may for example include satellite communication, ATM, ADSL, two way cable network or any other type appropriate for the kind of data used.

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The data communication connection is preferably a two way connection at least at the initial stage.

The data exchange server DES requests from the set-top box STB information concerning the identity and identification of the services that are required. The request for identification of the services required, ensures that the connection made by the set-top box STB

5   with the data exchange server DES is for an appropriate TV post service and not a wrong connection. The identity information request may include a set-top box STB serial number, a smart card ID and/or a login password.

10   The data exchange server DES maintains a data synchronisation between the client side and the server side. During the operation of the system the TV post system first makes a connection to the data exchange server DES via the PSTN or an uplink modem in a two way cable system. By means of a connection command the data exchange

15   server DES identifies the right and where the data is to be sent to the TV post system. It may be a voice message to a voice mail server or an operator or alternatively a digital data to the TV post server. The data exchange server DES could reject any incompatible command or non-authorized person to use the system. The data exchange server

20   DES is also the server and data route for other applications which are using the public switched telephone network PSTN such as Internet access, E-commerce system, CA system, etc.

The requests may be specific for the requested TV post service

25   (where for example one or more services are provided) or may merely be for the provision of a connection to the TV post server. Once a connection is authorized, the set-top box STB user interacts with the TV post server by TV post commands. The commands are preferably

provided by appropriate protocols of which reference will be made hereinafter.

The telephone of the user/subscriber terminal may be used to leave
5   voice mail messages for the TV post voice mail server or to talk to a TV post operator. The telephone will also most preferably maintain its normal i. e. traditional telephone functions.

Alternatively the TV post server can receive a message sent via the
10 Internet. The present invention will allow for an Internet transmitted message to be delivered to a set-top box STB utilising the TV post server.

Having received a message from a TV post client or from the
15 Internet the TV post server then sets about delivering the message to the appropriate destination. These modes of delivery will now be discussed.

The transmission from the user terminal must indicate the
20 recipients address. The system of the present invention allows for a TV post subscriber to transmit to other TV post subscribers and via the Internet to Internet users or subscribers of other message delivery services (including TV post networks remote from that of the sender's). In either case the message must specify an address. The
25 recipients address may need to specify a specific e-mail or IP address, if for example the message is destined for an Internet e-mail user or if the message is destined for another network. The message which has preferably been stored at the TV post server and has been

converted into the appropriate protocol (TV post message protocol TPMP) is then to be delivered appropriately. The present invention has at least one of three options available for posting of the stored data from the TV post server. These are dependent on the location of

5 the addressee. The preferred protocol flow diagram of Figure 2 illustrates in general the three preferred options.

TV Post Server to Set-Top Box (TV Post Client Receiver)

10 A first option is described in more detail with reference to specific protocol flow diagram shown in Figure 3. In this example, it has been noted by the TV post server that the recipient address specified by the sender is that of a TV post subscriber of the same network. A message is sent via the set-top box STB and the public switched

15 telephone network PSTN to the TV post system using a set-top box data exchange protocol SDEP. The message is transmitted via an appropriate protocol (the TV post message protocol TPMP) by the TV post server. Having determined that the message packet is of a recipient located within the local TV post network, the TV post server

20 transfers the TPMP packet to the head end data broadcasting server which broadcasts the data over the network.

By way of example, the network in this case is a DVB cable network which may for example transfer the data by a DVB data transfer

25 protocol DTP. If the receiver of the message may not have the set-top box STB in operation, the DVB head end may at intervals repeat the broadcast of the data until the data is received by the appropriate set-top box STB.

During broadcasting, the DVB packet is captured and decoded by the TV post client (receiver) of the set-top box STB that matches the TV post mail address to ensure that the message is opened only by the appropriate receiver. The whole message may be sent to the set-
5   top box STB for, for example, immediate display on the television set. Alternatively a notification may be displayed on the TV set which will require a proactive retrieval of the entire message by the TV post client. The system may be set up to distinguish between the type of message that is to be transmitted. By way of example, if a message
10 packet is less than 4 kilobytes the whole message may be sent to the set-top box user. If the message contains a multimedia attachment (i.e. it contains two parts) or if the message is of a large size, the text notification message may be sent to the set-top box user notifying the TV post client to retrieve the attachment or the entire message from
15 the server.

TV Post Server to the Internet

With reference to Figure 4, the initial transmission of the message
20 from a TV post client (sender) to the TV post server is substantially similar to that explained with reference to Figure 3.

The TPMP message pack of the TV post server is checked to see whether the recipient is located outside of the TV post network. If it is
25 outside of the TV post network, and the message specifies an Internet e-mail address, then the TV post server will extract the TPMP message and repack it into an Internet e-mail packet for transmission over the Internet via the simple mail transfer protocol SMTP. The

Internet server of the TV post system will then transfer the data to the Internet network. From here it will be distributed via normal e-mail/Internet routing for delivery to the appropriate Internet service provider ISP.

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TV Post Server to a TV Post Client on another network

As an extension to the delivery of a message from the TV post server to the Internet, the message may be destined for a TV post
10   client (receiver) of a different network and is routed via the Internet.

The TV post server will route the message via the Internet as detailed in Figure 4, to the Internet server of a different TV post server (receiver side). A transmission of this kind will require for an Internet
15   address to be provided by the set-top box STB (sender side) which identifies the location of the TV post server (receiver side). With reference to the flow diagram of Figure 5 the message delivered via the Internet network is received via the Internet server of the TV post system on the receiver side. The Internet server and/or the mail server
20   (referring to the block diagram of Figure 1) monitors the incoming Internet e-mail messages having the appropriate address format (for example name/yy@tvpost.com). The TV post server on the receiver side maintains a database mapping an Internet e-mail address and TV post mail address book. The incoming Internet e-mail message is
25   checked by the TV post server. If the Internet e-mail address is found in the TV post server, the e-mail message is extracted. The extracted message is repacked into the appropriate protocol (TPMP, DTP) format together with the mapped TV post mail address: The message
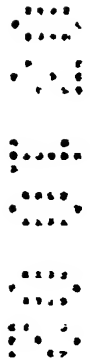
packet is then ready to be sent over the TV post network via the broadcast system such as for example the DVBC network described in more detail with reference to figure 3.
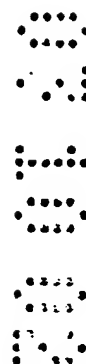
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CLAIMS

1. A system for the transmission of data comprising
   - means for generating a message,
   - an interface to connect the means for generating a message via a data network to a data exchange server,
   - a means for handling messages connected to the data network and a broadcast network,
   - a means for receiving messages via the broadcast network and
   - a means for displaying messages received from the broadcast network.

2. A system according to claim 1 in which the data is an e-mail and the means for generating a message is a keyboard connected to a set-top box.

3. A system according to claim 1 in which the data is generated by means of a personal computer which is connected to a set-top box.

4. A system according to claim 1 in which the data is generated by a telephone connected to a set-top box.

5. A system according to any of the preceding claims in which the broadcast network is a DVBC network.

6. A system according to any of the preceding claims wherein the data is transmitted between subscribers of the same broadcast network.

7. A system according to any of the claims 1 to 5 wherein the data is transmitted between subscribers of different broadcast networks.

8. A system according to any of the preceding claims wherein the means for handling messages is connected to the Internet.

9. A system according to any of the preceding claims in which the data are in any one or more multimedia formats such as sound, text, video or still images.

10. A system according to any of the preceding claims in which the interface to connect the means for generating a message and the means for receiving messages via the broadcast network are provided by a set-top box which dials up a data exchange server utilizing a public switched telephone network.

11. A system according to claim 10 in which the data exchange server requests from the set-top box information concerning the identity and the type of services that are required.

12. A system according to any of the preceding claims wherein a TV post server transfers data to a head end data broadcasting server which broadcasts the data over the broadcast network.

13. A system according to claim 12 which comprises a server for the Internet, a server for e-mail, a server for voice mail and a DVB data broadcasting server connected to a DVBC network via a DVBC head end.

14. A system according to any of the preceding claims in which the means for displaying messages displays the messages immediately on the screen of a television set.

15. A system according to any of the claims 1 to 13 which only displays a notification of an incoming message on the screen of a television set in view of a later retrieval of the complete message or an attachment of the message from the server.

16. A method for the transmission of data comprising the steps of
sending the data via a first public network to a data exchange
5   server, then handling the messages in an appropriate system of
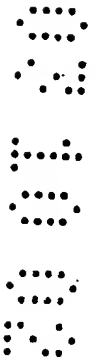servers and eventually receiving data via a broadcast network.

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Application No: GB 0116375.7   **Examiner:** Jared Stokes
Claims searched: 1 to 16   **Date of search:** 15 February 2002

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): H4K (KOD4, KOD6, KOX)*

Int Cl (Ed.7):

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2 349 058 A	(Integra5) See page 3 lines 20-25, page 9 line 9- page 12 line 30, page 18 lines 12-16	1-13,16
Y	GB 2 342 819 A	(IBM) See abstract	1-10,12-16
Y	EP 0 868 040 A2	(Sony) See whole document	1-10, 12-14, 16
X	WO 00/24198 A1	(OpenTV) See page 8 lines 8-28	1,5,9,10, 12,14,16
Y	JP 10 210 072 A	(Tokyo Shibaura) See abstract	15

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
		E	Patent document published on or after, but with priority date earlier than, the filing date of this application.
&	Member of the same patent family		